MATH 141, FALL 2009

Some integrals to start with (use appropriate substitutions):

$$\int x^2 \sqrt[3]{1-x}\, dx = -\frac{3}{140}(9+12x+14x^2)(1-x)^{4/3} + C$$

$$\int x^3(1-5x^2)^{10}\, dx = -\frac{1+55x^2}{6600}(1-5x^2)^{11} + C$$

$$\int \frac{x^2}{\sqrt{2-x}}\, dx = -\frac{2}{15}(32+8x+3x^2)\sqrt{2-x} + C$$

$$\int \frac{x^5}{\sqrt{1-x^2}}\, dx = -\frac{1}{15}(8+4x^2+3x^4)\sqrt{1-x^2} + C$$

$$\int x^5(2-5x^3)^{2/3}\, dx = -\frac{6+25x^3}{1000}(2-5x^3)^{5/3} + C$$

$$\int \cos^5(x)\sqrt{\sin(x)}\, dx = \left(\frac{2}{3} - \frac{4}{7}\sin^2(x) + \frac{2}{11}\sin^4(x)\right)\sqrt{\sin^3(x)} + C$$

$$\int \frac{\sin(x)\cos^3(x)}{1+\cos^2(x)}\, dx = -\frac{1}{2}\cos^2(x) + \frac{1}{2}\ln(1+\cos^2(x)) + C$$

$$\int \frac{\sin^2(x)}{\cos^6(x)}\, dx = \frac{1}{3}\tan^3(x) + \frac{1}{5}\tan^5(x) + C$$

$$\int \frac{\ln(x)}{x\sqrt{1+\ln(x)}}\, dx = \frac{1}{2}(-2+\ln(x))\sqrt{1+\ln(x)} + C$$

$$\int \frac{1}{e^x + e^{x/2}}\, dx = -x - 2e^{-x/2} + 2\ln(1+e^{x/2}) + C$$

$$\int \frac{1}{\sqrt{e^x+1}}\, dx = x - 2\ln(1+\sqrt{1+e^x}) + C$$

$$\int \frac{\arctan(\sqrt{x})}{(1+x)\sqrt{x}}\, dx = \arctan^2(\sqrt{x}) + C$$